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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,373	01/18/2005	Gun-Hec Han	P5085/Psm	7573
41943	7590	10/20/2005	EXAMINER LAUTURE, JOSEPH J	
GWIPS PETER T. KWON 1600-3 SEOCHO-DONG, SEOCHO-GU, DAELIM BUILDING, 9TH FLOOR SEOUL, 137-877 KOREA, REPUBLIC OF			ART UNIT 2819	PAPER NUMBER
DATE MAILED: 10/20/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/522,373

Applicant(s)

HAN ET AL.

Examiner

Joseph Lauture

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 1, 2 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 3; and claim 4, line 3: it is unclear what is meant by "of which the phase of a clock frequency is different". Does that mean each channel block has a different clock frequency? Clarification is required.

In claim 1, line 9, the term "an output  $y_n$  that passes an  $n$ 'th block's comparator is confusing. Is the output  $y_n$  coupled to the comparator? Clarification is required.

Claim 1 recites the limitation "the final output" on line 12. There is insufficient antecedent basis for this limitation in the claim.

In claim 3, line 1; and, claim 6, line 1: the term "when supposing the number of channel blocks is  $N$ " is confusing. Clarification is required.

In claim 3, line 3, the term " $1/N$  of each the clock frequency" is unclear. Clarification is required.

Claim 4 recites the limitation "the final output" on line 12. There is insufficient antecedent basis for this limitation in the claim.

In claim 6, line 3, the term " $1/N$  of each the clock frequency" is unclear. Clarification is required.

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In claim 1, lines 6-8, it is unclear how an n'th channel output can be  $u_n$  and  $v_n$  at the same time. Clarification is required.

#### Claim Objections

Claim 1 is objected to because of the following informalities: On line 12, before "each", "the" should be deleted.

Claim 1 is objected because of the following informalities: Line 11 contains a period (.). A period is not an accepted punctuation within a claim.

Claim 2 is objected to because of the following informality: On line 1, "an" should be inserted between "is" and "odd".

Claim 5 is objected to because of the following informality: On line 1, "an" should be inserted between "is" and "odd".

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

### Allowable Subject Matter

Claims 1-6 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

### Reasons for Indication of Allowability of Subject Matter

The following is a statement of reasons for the indication of allowable subject matter: the prior arts of record fail to teach a time-interleaved delta-sigma modulator comprising inter alia: a plurality of channel blocks each having a different clock frequency, wherein an input signal is inputted to a first adder, and the output of a first adder of an  $n$ 'th channel block is inputted to the first adder and a second adder of an  $(n + 2)$ 'th channel block, wherein an output of the second adder in a given channel is inputted to the second adder of that channel and to an  $(n+2)$ 'th channel block and the output of a comparator is inputted to the first adder and the second adder of an  $(n+2)$ 'th block.

### Citation of Relevant Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nagata et al (US 5,345,233) teach a delta-sigma modulator.

Fischer et al (US 6,215,429) teach an audio codec.

Yamazaki teaches a delta-sigma modulator.

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### CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Lauture, whose telephone number is (571) 272-1805. The examiner can normally be reached Monday to Friday between 9:30 am and 6:00 PM

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached at (571) 272-1740. The fax number for the organization to which this application is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Joseph Lauture  
Art Unit: 2819  
Date: 10/13/05

  
PÉGUY JEANPIERRE  
PRIMARY EXAMINER